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The following documents are cited in this Official Communication for the first time. (If they are numbered, their numbers will apply throughout the procedure):

- (1) EP 0 814 442 A2
- (2) Patent Abstracts of Japan, 2000-115302
- (3) Patent Abstracts of Japan, 62-128648
- (4) Patent Abstracts of Japan, 08-154114

Document (1) already shows a method for a mobile communication terminal with the characterizing features of patent claim 1. See (1), particularly column 1, lines 1-11, column 2, line 37 through column 4, line 27.

Although the mobile communication terminal is not a telephone, but a "wireless call receiver" (so-called pager), i.e. a mobile receiver used before the mobile telephones, the person skilled in the field of mobile communication terminals is quite familiar with such pagers and will consider the features known to him from such pagers also in the case of mobile phones, particularly a standard display in the stand-by mode, because both devices have a stand-by mode and a display.

Patent claim 1 is thus at least not allowable because of lack of an inventive level or even because of lack of novelty of its subject matter.

Note: Document (2) also discloses the subject matter of patent claim 1, for (2) already shows a telephone with a timer which, when a time ("date and time") is reached that can

be defined by the user, displays a specific image on the display of the mobile phone in the stand-by mode; cf. (2), abstract.

II

In the absence of a main patent claim 1, patent claim 2 which is appended to claim 1 is already unallowable for formal reasons. Moreover, its characterizing features are also explicitly known from each of documents (1) and (2); see the already cited passages.

III

Regarding patent claims 3 and 4:

Document (3) already discloses a telephone in the case of which the user can freely define in a "scheduler" the "ring melody" to be output in the case of an incoming call. See abstract of document (3).

Therefore, the independent patent claim 3 and also patent claim 4 which is appended thereto are unallowable because of lack of novelty of their subject matters.

Apart from document (3), document (4) also presents a bar to the grant of a patent on said patent claims, for this document also shows a telephone in which the "ring melody" is changed in response to the time of day.

Although in contrast to patent claim 4 an adjustable time is here not provided, said feature is again known from each of the generic documents (1), (2) and (3) and is used there in the relevant technical field also for the same purpose, namely to inform the user about a time event by changing the standard information output of his telephone.

Therefore, the subject matter of patent claims 3 and 4 is obvious from the known prior art.

IV

Patent claims 5 and 6 refer to a communication terminal comprising both the features of patent claim 1 and the features of patent claim 3, i.e. the type of image on the display in the stand-by mode and the type of ring sound melody are each dependent on the time of day, and said times are each adjustable by the user.

This, however, is a mere accumulation of features known from (1)/(2) and (3)/(4), for the effect of an image output in the stand-by mode depends on the effect of the ring sound selection in the case of incoming calls. The resulting effect of the feature combination does not go beyond the effect of each of the individual effects known from documents (1)/(2) and (3)/(4), respectively.

An inventive step over the prior art known e.g. from (1) and e.g. from (3) can thus not be substantiated by summarizing the features.

V

If the applicant still detects a patent-substantiating difference over the known prior art in the remaining documents, he should clearly express this in a new patent claim 1. In this case the applicant is asked

- to substantiate in detail the necessary inventiveness over the prior art that has become known;
- to adapt the further documents to the new patent claim and to revise them in the standard way;
- and to explain the prior art in the introduction to the specification in an appropriate way and to furnish documentary evidence thereof.

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1. Title of the Invention

5 **TELEPHONE SET**

2. Claims

(1) A telephone set capable of ringing various types of incoming call tones or sending at least one of various types of holding tones, the telephone set comprising: a tone quality/volume changing unit for changing tone quality/volume when an incoming call is received; an information memory unit for storing tone quality/volume setting information and schedule information; a clocking unit for clocking a date and time; and a collation unit for calling a date and time clocked by the clocking unit and collating the called date and time with the schedule information stored in the information memory unit, when an incoming call is received or holding is required, wherein the incoming call tone or the holding tone is determined by the tone quality/volume setting information stored in the information memory unit, according to a collation result from the collation unit, and then the determined incoming call tone rings or the determined holding tone is sent.

20 (2) The telephone set as claimed in claim 1, wherein the information memory unit is a portable external memory medium.

3. Detailed Description of the Invention

【Industrial Applicability】

The present invention relates to a telephone set with a function of automatically selecting an incoming call tone/holding tone.

【Prior Art】

FIG. 7 illustrates the structure of a conventional telephone set. In FIG. 7, reference numeral "1" designates a holding switch, reference numeral "2" designates a telephone line, reference numeral "3" designates a hook switch,

reference numeral "4" designates a holding tone quality/volume changing unit, reference numeral "5" designates a speaking circuit unit, reference numeral "6" designates a call originating circuit, reference numeral "7" designates an incoming call tone quality/volume changing unit, reference numeral "11" 5 designates a handset, reference numeral "12" designates a dial, reference numeral "13" designates a sounder, reference numeral "15" designates a holding tone selection switch, and reference numeral "16" designates an incoming call tone selection switch.

Such a conventional telephone set operates as follows: when an 10 incoming call is received, the telephone set rings an incoming call tone whose tone quality/volume is predetermined by the incoming call tone selection switch 16. If the holding switch 1 is pressed when holding is desired, the telephone set sends a holding tone whose tone quality/volume is predetermined by the holding tone selection switch 15.

15 【Problem to Be Solved by the Invention】

In this way, whenever a user desires to change the tone quality/volume of an incoming call tone or a holding tone, he/she must operate the incoming call tone selection switch 16 and the holding tone selection switch 15. On account of this, it is impossible to automatically change tone quality according to seasons 20 or automatically change volume between day and night.

The present invention provides a telephone set having a function of automatically setting an incoming call tone or a holding tone in conformity with a schedule.

【Means for Solving the Problem】

25 A telephone set according to the present invention includes a tone quality/volume changing unit, an information memory unit for storing tone quality/volume setting information and schedule information, a clocking unit for clocking a date and time, and a collation unit for calling a clocked date and time and collating the called data and time with the schedule information.

【Function】

According to the present invention, when an incoming call is received or holding is required, a date and time clocked by the clocking unit is collated with schedule information stored in the information memory unit, and an incoming 5 call tone rings or a holding tone is sent by using tone quality/volume stored in the information memory unit, which corresponds to a result of the collation.

【Embodiment】

FIG.1 is a constructional block diagram of a telephone set according to a first embodiment of the present invention. In FIG. 1, reference numeral “4” 10 designates a holding tone quality/volume changing unit for sending a melody when holding is required, reference numeral “7” designates an incoming call tone quality/volume changing unit for sending a melody when an incoming call is received, reference numeral “8” designates a clocking unit for clocking a year/month/day/hour/day of the week, etc., reference numeral “9” designates a 15 collation unit for collating a date and time with schedule information, reference numeral “10” designates an information memory unit for storing incoming call tone quality/volume setting information and schedule information, reference numeral “14” designates a variety of operation buttons for inputting tone quality/volume settings and schedule information into the information memory 20 unit 10, reference numeral “23” designates a control unit, and other reference numerals are the same as those in FIG. 7.

FIG. 2 is a flowchart of settings and call arrival, which illustrates the operation of the first embodiment. Reference numerals (1), (2), and (11) to (15) designate respective steps. Hereinafter, the operation of the first embodiment 25 illustrated in FIG. 1 will be described with reference to FIG. 2.

First of all, a user inputs incoming call tone quality/volume setting information and schedule information by means of the dial 12 and the various operation buttons 14 (step (1)), and stores them in the information memory unit 10 (step (2)).

Subsequently, when an incoming call is received (step (11)), the schedule information is first read out from the information memory unit 10 (step (12)), and then the date and time of call arrival is read out from the clocking unit 8 (step (13)). Further, the date and time is collated with the schedule information in the 5 collation unit 9 (step (14)), the incoming call tone quality/volume setting information according to a result of the collation is read out from the information memory unit 10, the tone quality/volume of an incoming call tone is set corresponding to the read-out condition by the tone quality/volume changing unit 7, and then the sounder 13 rings with the set tone quality/volume (step (15)).

10 FIG. 3 is a constructional block diagram of a telephone set according to a second embodiment of the present invention. This embodiment is different from the first embodiment in that it has an incoming call tone selection switch 16 and an information memory unit 17 for storing holding tone quality/volume setting information and schedule information, and can automatically change 15 holding tone quality/volume.

FIG. 4 is a flowchart illustrating the operation of the second embodiment. Reference numerals (21), (22), and (31) to (36) designate respective steps. Hereinafter, the operation of the second embodiment illustrated in FIG. 3 will be described with reference to FIG. 4.

20 First of all, a user inputs holding tone quality/volume setting information and schedule information by means of the dial 12 and the various operation buttons 14 (step (21)), and stores them in the information memory unit 17 (step (22)).

Subsequently, when holding is required (step (31)), the schedule 25 information is read out from the information memory unit 17 (step (32)) by pressing the holding switch 1 (step (33)), and the date and time, at which the hold switch 1 is pressed, is read out from the clocking unit 8 (step (34)). Further, the date and time is collated with the schedule information in the collation unit 9 (step (35)), the incoming call tone quality/volume setting information is read out 30 from the information memory unit 17 according to a result of the collation, and

then a melody, whose tone quality/volume is set corresponding to the read-out condition by the tone quality/volume changing unit 7, is sent (step (36)).

FIG. 5 is a constructional block diagram of a telephone set according to a third embodiment of the present invention. This embodiment is the same as the 5 first embodiment of FIG. 1, except that the information memory unit 10 of FIG. 1 is formed as a portable external memory medium, that is, an IC card 18, on which plural pieces of information are accumulated, and an IC card interface 19 for accessing the control unit 23 is provided.

In the third embodiment illustrated in FIG. 5, the information memory 10 unit 10 in the first embodiment of FIG. 1 is formed as the IC card 18, but the overall operation of the second embodiment is basically unchanged, so a description thereof will be omitted.

FIG. 6 is a constructional block diagram of a telephone set according to a fourth embodiment of the present invention, in which an IC card 20 and an IC 15 card interface 21 are used in stead of the information memory unit 17 in the second embodiment of FIG. 3. The operation of the fourth embodiment is not different that of the second embodiment, so a description thereof will be omitted.

Although, in the above-mentioned embodiments, automatic tone quality/volume setting in conformity with a schedule is individually performed 20 for an incoming call tone and a holding tone, it is possible to simultaneously perform automatic tone quality/volume setting for an incoming call tone and a holding tone by using a combination of the embodiments. With regard to this, it is also possible to set an incoming call tone and a holding tone to the same condition.

25 As described above, in the present invention, an incoming call tone and a holding tone can be automatically controlled in conformity with a schedule by providing an information memory unit for schedule information of the incoming call tone and the holding tone, and collating the information memory unit with a clocking unit.

【Effect of the Invention】

According to the present invention as described above, tone quality/volume setting information is stored in advance in an information memory unit, and a collation unit collates clocking information from an clocking unit with schedule information to thereby output required tone quality/volume, so that the tone quality/volume of an incoming call tone/holding tone can be automatically changed based on schedule information for an incoming call tone/holding tone when an incoming call is received or holding is required. For example, as incoming call tone/holding tone, a melody telling the beginning of a new year can be in January, the Jingle Bell song can be used in December, and the Happy Birthday song can be used on a birthday. Thus, a telephone set according to the present invention can please users.

Further, when the schedule information for an incoming call tone/holding tone is accumulated on a portable external memory medium, such as an IC card and so forth, there is an advantage in that the scope of automatically selecting the tone quality/volume of an incoming call tone/holding tone can further widen.

【Brief Description of the Drawings】

FIG. 1 is a block diagram illustrating the construction of a telephone set according to a first embodiment of the present invention.

20 FIG. 2 is a flowchart illustrating the operation of the first embodiment in FIG. 1.

FIG. 3 is a block diagram illustrating the construction of a telephone set according to a second embodiment of the present invention.

25 FIG. 4 is a flowchart illustrating the operation of the second embodiment in FIG. 3.

FIGS. 5 and 6 are block diagrams illustrating the constructions of third and fourth embodiments of the present invention, respectively.

FIG. 7 is a block diagram illustrating the construction of a conventional telephone set.

【Reference Numerals】

- | | |
|----------------------------------------------|----------------------------------------------------|
| 1: holding switch | 2: telephone line |
| 4: holding tone quality/volume changing unit | 5: speaking circuit unit |
| 6: call originating circuit | 7: incoming call tone quality/volume changing unit |
| 5 8: clocking unit | 9: collation unit |
| 10: information memory unit | 11: handset |
| 12: dial | 13: sounder |
| 14: various operation keys | 15: holding tone selection switch |
| 22: electronic hook switch | 23: control unit |

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